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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,213	12/11/2003	George S. Pabis	12093/929	7999
26646	7590	05/02/2006	EXAMINER	
KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			GREENE, DANIEL LAWSON	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,213

Applicant(s)

PABIS ET AL.

Examiner

Daniel L. Greene Jr.

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. **New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application for the reasons set forth in sections 1, and 1.a. of the previous Office action mailed 5/18/2005.**

Applicant's amendments to the Figures appear to overcome the objections of sections 1.b. and 1.c. of the objections to the drawings from said previous Office action mailed 5/18/2005, however, ONLY said objections of said sections 1.b. and 1.c. of said objections are hereby withdrawn.

a. Regarding section 1, Applicant has failed to correct the drawings for the reasons set forth in the PTO-948 that was attached to said previous Office action. Accordingly ANOTHER form PTO-948 is attached hereto including objections to the drawings received 12/11/2003, 10/27/2005 AND 02/15/2006. Applicant is required to submit corrected drawings that correct ALL of the issues raised in said PTO-948.

b. Regarding section 1.a.1.) of the previous Office action mailed 5/18/2005, replacement figure 1 received 10/27/2005 is considered NOT ACCEPTABLE because:

1.) Said figure 1 presents new matter because there is no basis in the disclosure as filed for indicating what it does, including, for example, the length, placement, orientation, geometry (e.g. expands outward from the first end (24) of the repair sleeve, tapers inwardly in the downward

direction, etc.), etc. of the thimble insert assembly. The specification as filed on page 7 lines 7-8 lists multiple species of what a thimble insert assembly may be. Accordingly there is no basis for showing that, for example, a plug is as long as, nor that it extends upwards past the top nozzle, nor that it flares outwards, as depicted in said figure 1,

2.) Applicants indicia showing the thimble insert assembly extends beyond said top nozzle for some indeterminate distance also appears to indicate that shaft (14) of the repair sleeve also extends some indeterminate distance and,

3.) Indicia (1) does NOT appear to point to anything in particular including said thimble insert assembly. The line simply stops in mid air.

c. Regarding section 1.a.2.) of the previous Office action mailed 5/18/2005, Applicant's arguments have been fully considered but are they not persuasive because it is not seen exactly what part of the shaft is removed. Currently the specification as filed, page 6 lines 26-27 states "The shaft 14 is split in the location of the dimple area to allow the tendon 66 to defect (sic) into the dimple area." Applicant's use of the term "split" is not considered as connoting the same meaning as sleeve opening (28) otherwise Applicant would have presumably called or defined said sleeve opening as a "split". A review of Figures 1 and 2 shows openings which the Examiner does not consider having the same meaning as a split. Because of Applicant's arguments it appears Applicant is

using the word "split" as a verb and not a noun as indicated in the following excerpts from Applicants 2/15/2006 remarks;

Page 9: "Applicants furthermore respectfully submit that the shaft 1.14" is split as designated in Figure 1 by the removed areas of material next to the location of the tendon 20." (Underlining added)

Page 11: "Applicants further submit that the shaft 14 has openings 28 which are areas of removed material as indicated in Figures 1 and 2. The tendons 20 project through these open areas as described in the specification on page 5, line 1 to line 11. The specification does not include any suggestion that the tendons are placed into the sleeve at a later time. As illustrated, the shaft 14 is a single piece of material with openings 28 created by the removal of material from the shaft 14 with tendons 20 running through the areas of the shaft which do not have openings. The shaft is split into separate sections (the tendons) by the openings in the shaft of material." (Emphasis added)

If the Examiners contention is correct, i.e. that the Applicant is using the term "split" as a verb instead of a noun, it would appear that this objection could be overcome by amending the specification as filed at page 6 lines 26-27 to something like "Shaft 14 is split into separate sections (the tendons 20) by the sleeve openings 28 in the shaft material." or something to this effect.

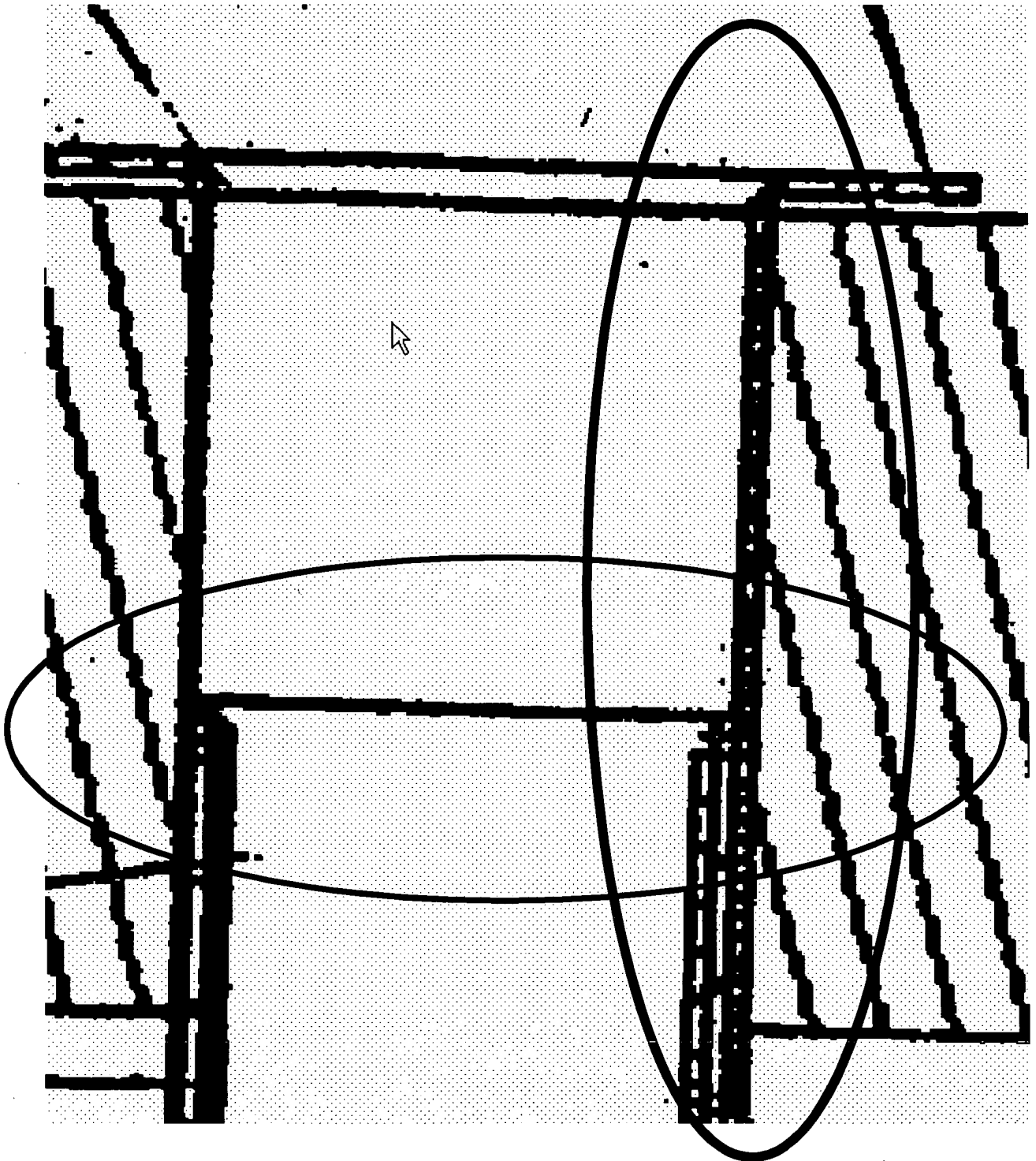
Again, the term "split" does NOT connote any particular structure, per se and "a split" is not considered as having the same meaning as "sleeve opening 28" because a split is considered as "a narrow break made by or as if by splitting".

Accordingly the objection is maintained and incorporated herein by reference.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the repair sleeve having a lapped edge as described in the specification as

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filed, page 5 lines 22+. As illustrated in the exploded portion of Figure 2 below, Figure 2 does NOT indicate that shaft 72 continues past the horizontal line encompassed by the horizontal oval below. Figure 2 appears to show that it is actually guide thimble sleeve (68) that is lapped over the edge.



Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing

sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. **The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because Applicant's 10/27/2005 amendment to Figure 1 caused reference character "22" to appear to designate both the thimble insert assembly AND a guide thimble.** Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant has amended the specification such that the objections of sections 2.a.-d. from the previous Office action mailed 5/18/2005 have been overcome and are hereby withdrawn.

5. **The amendments filed 10/27/2005 and 2/15/2006 are objected to under 35 U.S.C. 132(a) because they introduce new matter into the disclosure.**

35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is the 10/27/2005 amendment to Figure 1 as explained previously in section 1.b. above.

Applicant is required to cancel the new matter in the reply to this Office Action.

6. **The disclosure is objected to because of the following informalities:**

a. The abstract of the disclosure is objected to because the abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The Examiner offers the following Abstract;

“A method and device to repair nuclear fuel assembly structural defects in the top nozzle to guide thimble connection, wherein the device includes a sleeve comprising tendons configured to deflect to allow establishment of a structural connection between a projection on each tendon and a dimple area of a guide thimble.” (Underlining added to show terms added by the Examiner. Note that the Examiner has withdrawn the rejection concerning the definition of the term “tendon” as explained in more detail below.)

Correction is required. See MPEP § 608.01(b).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure for the reasons set forth in section 3 of the previous office action mailed 5/18/2005.

a. Regarding section 3.a. Applicant's arguments filed 2/15/2006 have been fully considered but they are not persuasive (see page 10 section IV.) Applicant submits that the device is only used when the reactor is shut down. The Examiner disagrees because the specification as filed discloses on page 7 lines

26-30 and page 8, lines 1-3 that "The repair sleeve will not negatively affect overall fuel assembly pressure drop due to its relatively small size." (Underlining added) Clearly this indicates Applicant's intent to utilize the invention in an operating nuclear power plant otherwise pressure drop would NOT be an issue. Further, even Applicant admits that there will be contact with the insert assembly (which can be a control rod) and the tendon in the remarks received 2/15/2006, page 11, second full paragraph, last line, which supports the Examiners contentions of said section 3.a..

b. Regarding section 3.b., failure to respond to the Examiners contentions is construed as applicant being in agreement with said contentions. Accordingly the specification fails to specifically disclose the metes and bounds of the phrase "thimble insert assembly" and as such said phrase is undefined.

c. Regarding section 3.c., Applicant's use of different terms in the specification and the claims to describe how the tendons are incorporated into the sleeve do not negate the interpretation presented by the Examiner. A review of the specification as filed, page 5 lines 1-11 supports the Examiners contention that the "tendons may be positioned through the sleeve openings." Which can be understood to mean that the tendons may be positioned through the sleeve openings, may be positioned in other areas besides the sleeve openings, or that the tendons may not be positioned anywhere at all. It is the wording of said section of the specification that gives rise to this objection as the terms "may be" does NOT connote any concrete physical apparatus because every limitation that

follows the words "may be" is considered optional, because it "may be" what Applicant says it is or it "may not". When such ambiguity is present, an objection is proper in order to clarify exactly what the invention Applicant is searching protection/coverage for (patent wise). Further, it is not proper for the remarks section of a response to supply information that the specification itself should have contained.

d. Regarding section 3.d., See the discussion of this topic in section 1.c. above.

e. Regarding section 3.e., it is NOT the repair sleeve that deflects, per se, it is the TENDONS that deflect. It is not seen wherein the specification as filed discloses any other portion of the repair sleeve that deflects other than the tendons. Further, even Applicants arguments received 2/15/2006, page 11 second full paragraph support the Examiners contentions because Applicant admits

"through plastic deformation of the sleeve (i.e. the placement of the thimble insert does not allow the tendons to bend due to contact between the insert assembly and the tendon 20.) " (Emphasis added)

Clearly, it is the tendon that deflects, NOT the repair sleeve. Claiming that the repair sleeve deflects without the tendons doing the deflection implies there may be some critical feature of said repair sleeve that has not been disclosed and does not appear to be an accurate disclosure of exactly what is deflecting.

Claim Objections

8. The objections to the claims in section 4 of the previous office action mailed 5/18/2005 are withdrawn due to applicant's amendment adding the term "nuclear" to the claims.

Claim Rejections - 35 USC § 112

9. **Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention for the reasons set forth in section 3 of the office action mailed 5/18/2005 and explained in more detail in section 7 above.

10. **Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

a. Applicants remarks concerning the rejections of sections 6a-6c and 6f-6h of the previous Office action mailed 5/18/2005 are persuasive, however ONLY said rejections of said sections 6a-6c and 6f-6h are withdrawn.

b. Applicant's response to section 6.d. of the previous office action mailed 5/18/2005 substantiates the Examiners contentions that claim 9 is indeed vague, indefinite and unclear. The wording of claim 9 is so broad as to allow for multiple interpretations that are neither disclosed nor considered in the application as

filed. The claim recites; for example, a repair sleeve having a shaft wherein the shaft has at least two openings and at least two tendons extending through the openings.

In Applicant's remarks received 2/15/2006, on page 12, first paragraph, Applicant states "...Webster's... Dictionary defines the word "extended" as to "reach", therefore the extended tendons reach through the opening." This statement can be understood to mean, for example, not only that tendons are an integral part of the shaft and reach or extend from one side, or material surface boundary, of the opening to another side, or material surface boundary such that the opening is traversed from one side to another making two openings on either side, but also that the tendons and openings are totally separate individual items (i.e. that the tendons are not an integral part of the repair sleeve itself) with the tendons actually extending or reaching through the openings themselves, i.e. that they reach there-through, not there-along.

Claim 9 itself does not disclose that it is the openings that create the tendons, only that the tendons extend through the openings and as such do not have to be an integral part of the repair sleeve itself. That is, the claim language does not specifically require or disclose that the tendons are or must be an integral part of the repair sleeve itself. The tendons must only extend or reach through the openings of the shaft. The tendons could be, for example, part of the nuclear fuel assembly.

Claim 9 does not specify the location, orientation, geometry, etc. of the openings of the shaft. Presumably there is an opening at the top and bottom of the shaft to allow the thimble insert assembly to be inserted into the interior of the repair sleeve, however the claim itself does not specify where these openings are or how they interact, align, etc. with the tendons. Although the claims are interpreted in light of the specification, limitations from the specification are NOT imported into the claims. The Examiner must give the claim language the broadest reasonable interpretation the claims allow.

See MPEP 2111.01, which states

While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims **must be interpreted as broadly as their terms reasonably allow**. In re American Academy of Science Tech Center, F.3d, 2004 WL 1067528 (Fed. Cir. May 13, 2004)

c. Regarding Applicant's response to section 6.e. of the previous office action mailed 5/18/2005. The addition of the limitation "during insertion" to claim 9 does not alleviate the fact that claim 9 states it is the tendons that are deflecting and claim 10 states it is the repair sleeve that is deflecting. Applicant's use of two different terms does not clearly and distinctly claim the subject matter of Applicant's invention. It would appear that if applicant were attempting to claim the same thing, then the same terms would be used in both claims.

Even Applicant states (page 12 second paragraph) that it is the "tendons" deflecting. Again, it is not the repair sleeve that is deflecting, per se; it is the tendons of the repair sleeve. It is the tendons that are prevented from further

deflection, not the repair sleeve itself. The language of claim 10 does NOT require the prevention of ONLY the deflection of the tendons but allows for some other deflection of the repair sleeve not disclosed.

Since claim 9 states it is the tendons that deflect, NOT THE REPAIR SLEEVE, the limitation "prevents further deflection of the repair sleeve" does NOT have proper antecedent basis because the claims do not expressly disclose which first deflection of the repair sleeve is being prevented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,684,498 to Paul in view of U.S. Patent 6,356,614 to Allen et al.

Paul discloses a method comprising: providing a sleeve (48) (see for example Figures 2-7), said sleeve (48) having a shaft with a first end, a second end and a diameter, the diameter configured to fit into a guide thimble opening of a top nozzle of the fuel assembly, wherein the diameter of the shaft is dimensioned such that an exterior of the shaft fits into the guide thimble opening, wherein the shaft has at least two openings (82), and at least two tendons

extending through the openings (reads on the 4 parts of lower portion (70) since the term tendon as used by the specification does not connote any particular structure), the tendons configured to deflect in an instance of a horizontal load on the tendon (see for example column 8, lines 4-5) during insertion, the tendons having a projection (80) configured to be inserted into a dimple (76) of a guide thimble sleeve (44); and inserting the sleeve (48) in the guide thimble opening in the top nozzle (40) of the nuclear fuel assembly such that said projections (80) of said tendons project into said dimples (76) of said guide thimble sleeve (44); and inserting a thimble insert assembly into an interior of the repair sleeve (reads on a control rod being inserted into the control rod guide thimble) in Figures 1-7, column 7, lines 43+, and column 8, lines 1-11.

It is noted that the claim language for the term repair sleeve reads on sleeve (48) of Paul since Paul is clearly capable and intended for repairing a nuclear fuel assembly.

It is also noted that the term bulge reads on the terms projections of the tendons and guide sleeve, as a bulge is a projection.

Paul is clearly capable of the limitations disclosed in claim 10, wherein the step of inserting the thimble insert assembly into the interior of the sleeve inherently prevents further deflection of the sleeve in a horizontal direction since the sleeve will only be able to deflect horizontally towards the thimble insert assembly until said thimble insert assembly contacts with and physically prevents any further horizontal motion of said sleeve.

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As to limitations which are considered to be inherent in a reference, note the case law In re Ludtke, 169 USPQ 563, In re Swinehart, 169 USPQ 226, In re Fitzgerald, 205 USPQ 594, In re Best et al., 195 USPQ 430, and In re Brown, 173 USPQ 685,688.

Allen et al. teaches that it is known to be beneficial in the nuclear fuel assembly art for repair sleeves (105) to include a flange (106) or lapped edge for the purpose of providing additional load bearing surfaces in, for example, Figure 6, Column 2 lines 63+, column 3 lines 1-3 and column 4 lines 20-27.

At the time of the invention it would have been obvious to one of ordinary skill in the art to have incorporated the teachings of Allen et al. in the invention of Paul such that sleeve (48) incorporated a flange or lapped edge for the benefit of providing another load bearing surface. This modification does not destroy but actually enhances the Paul reference because Paul discloses in, for example, column 3 lines 1-15 that it is also known in the nuclear art to remove locking tubes from the fuel assembly during reconstitution and as such is evidence that it is known in the nuclear fuel assembly art to not only remove the locking tubes, but to also retain them within the guide thimble. The addition of a lapped edge to locking tube (48) would appear to prevent the locking tube from being pushed further into the guide thimble for storage. However, Paul clearly discloses that both methods are known in the art. Again, providing an additional load-bearing surface aids in, for example, removal of the entire fuel assembly from the reactor core because some of the load carried by the guide thimble itself would be

distributed to nozzle adapter plate (40), this additional load bearing surface would help to minimize mechanical stresses to the guide thimbles themselves.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Examiner's Note: The Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant.

Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part

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of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Greene Jr. whose telephone number is (571) 272-6876. The examiner can normally be reached on Mon-Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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2006-05-01

JACK KEITH
SUPERVISORY PATENT EXAMINER